PULSED FIELD GEL ELECTROPHORESIS CHAMBERS, ACCESSORIES AND METHODS OF USE FOR THE SEPARATION OF DNA MOLECULES

ABSTRACT

Methods of use, accessories and chambers, optimal for performing Pulsed Field Gel Electrophoresis (PFGE) of DNA molecules in 'Contour Clamped Homogeneous Electric Field' (CHEF) and 'Transversal Alternating Field Electrophoresis' (TAFE) systems, are provided herein. DNA molecules are rapidly separated in the minigels of these chambers. The sizes of chambers and accessories are determined by the separation between the opposite polarity electrodes; which is comprised between 6,2 and 15 cm. Reproducibility of molecule separation is achieved because the accessories warrant homogeneous electric resistance in the buffer and minigels. Chambers allow a high-throughput sample format using the reagents efficiently. It is attained excluding the non-useful electrophoresis zones For a better optimization, TAFE chambers have several useful electrophoresis zones (UEZ), each carrying a minigel. One or more UEZ can be activated at will in the electrophoresis, to vary the number of minigels, the number of samples and the amount of buffer among the experiments. TAFE chambers having 'inverted electrode configuration' with the cathodes at their bottom are presented.